Do You Sea the Difference?

Grade Level

5th grade

Learning Objectives

Students will investigate and understand how plants and animals in aquatic and terrestrial ecosystems interact with one another and with the nonliving environment.

Guiding question

What are similarities and differences in ocean, estuaries, and terrestrial environments?

Materials

Internet access
2 10 gal. Aquariums w/ filter hookups
Cookie containers (terrariums)
Specific gravity meter
Ph strips
Assorted plants and animals for aquatic and terrestrial ecosystems
Folders and/or notebooks for recording research data.
Plant and animal food
Buckets, nets, gloves, old shoes

Audiovisual equipment

Computer w/ internet access
TV w/ computer hookup capabilities
Overhead projector
VCR
CD player/tape player

Teaching time

2-3 weeks

Seating arrangement

Groups of 4-5

Maximum number of students

30

Key words

Aquarium/terrarium
Ecosystem
Organism
Abiotic/Biotic factor
pH
Salinity
Marine
Estuary
Freshwater
Water cycle (evaporation, condensation, and precipitation)
Tide
Current
Gravity
Equator
High tide/low tide
Brackish water
intertidal

Background information

Effective science instruction integrates science content and experiences with all areas. Students are provided with many opportunities to develop reading, writing, and math skills via meaningful activities and strategies built into lessons provided by ***Harcourt Brace Science***. Students will also use several **FOSS** kits that address standards such as ***Land and Water*** (Landforms), ***Ecosystems*** (Environment), and ***Mixtures and Solutions*** (Variables). They have had the opportunity to explore sites on the Internet as well as CD's such as the ***Characterization of the ACE Basin, South Carolina***, in preparation for their unit of study. A "Cyberhunt" will be part of the initial research to help them make use of possible Internet sites.

Learning procedures

1. Predict what will live in aquatic (ocean and freshwater) and terrestrial ecosystems.
2. Investigate ecosystems by observation of touch tanks provided by local aquatic agencies and researching web-sites (list of sites) and other resources.
3. Chart/illustrate similarities and differences of food chains and lifecycles found in the aquatic and terrestrial ecosystems using WWW, as well as other resources,
4. Discuss findings compared to predictions of what should be in each ecosystem.
5. Construct ecosystems based on information gathered during ecosystem investigation including necessary life-supporting requirements for creating an artificial habitat in the classroom.
6. Record observations of habitat occurrences over a period of time.

Why is this important to me?

To understand differences in ecosystems and to explore and identify career opportunities in natural resources/environmental/marine science.

Assessment

Cooperative group work
Class participation
Notebook assessments including graphic organizers, spreadsheets, and record keeping documents
PACT-like questions

Adaptations

Powerpoint presentations, Excel, and Word will be utilized in the research project done in conjunction with the computer lab and media center.

Resources

Encarta Schoolhouse
www.actwin.com/fish/index.php
www.askjeeves.com
www.askjeevesjr.com
www.mdsg.umd.edu/oysters
www.mhhe.com/sciencemath/forestryenviron/pae/glossary.html
www.fi.edu/tfi/units/life/habitat/habitat.html *
www.angelfire.com/sk/monkeypuzzle/ecopackage.html
ecosystems.mbl.edu/
ecosystems.net/
www.ecostudies.org
www.sci.org
www.aquaticeco.com/
www.hear.org
Seawifs.gsfc.nasa.gov/OCEAN_PLANET/ HTML/education
www.vims.edu/bridge/elementary.html
www.libsci.sc.edu/miller/ocean.htm
The Magic School Bus Explores the Ocean (CD Rom)
The Idiot's Guide to Saltwater Aquariums
The Aquarium Book Ancona, G.
Scripps Institution of Oceanography
The Naval Meteorology and Oceanography Command Home Page
The Complete Aquarium Problem Solver (Boyd, Kevin. W)
ACE Basin CD

Cross-curricular connections

Language Arts
- Writing for variety of purposes specifically to research ecosystems
- Keeping journals & drafts to understand/record experiences and ideas
- Record information accurately/to research & report information
- Research
- Synthesize information from a variety of resources
- Computer/technology standards
- Communication through application software

Math
- Geometry and spatial sense (graphing)
- Measurement
- Probability and statistics
- Computer/technology standards

Social Studies
- People, places, and environments: Geography

Fine arts
- Music
- Art

South Carolina Science Standards for 5th grade

Inquiry – Throughout the unit of study
Life Science – Cells/Systems- Ecosystems (Aquatic/Terrestrial)
Earth Science- Changes in the Earth's Surface: Landforms and Oceans
Physical Science- Mixtures and Solutions, Forces, Motion, and Design